

ABSTRACT

A dual mode laser delivery system provides a controllable depth of both ablation and coagulation of an area of skin to be treated. The laser delivery system preferably includes a laser source having a short penetration depth. The controllable ablation depth is achieved by providing an appropriate series of pulses from the laser having an energy and exposure time to achieve ablation of the exposed area of skin to the desired depth. Once ablation of the skin has been performed, a coagulation region to the desired coagulation depth is then generated within the remaining exposed layer of skin by preferably applying a series of one or more very short non-ablative laser pulses at a high repetition rate in order to raise the temperature of the surface of the skin to a desired temperature for a period of time. This series of coagulation pulses will also serve to raise the temperature of the skin under the surface of the skin to a temperature high enough to cause coagulation to the desired depth. The order of delivery of the ablation sequence and the coagulation sequence can also be reversed from that described if desired. A graphical user interface is included within the system in order to allow the user to easily select and monitor the necessary parameters such as ablation depth, coagulation depth, application order, scan pattern, scan size and rate of laser pulses. The laser pulses are generated from a laser source and delivered through an articulated arm. The articulated arm includes a series of relay focussing lenses in order to periodically refocus the laser beam as it travels through the articulated arm.